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National Aeronautics and Space Administration
Goddard Space Flight Center

Goddard News

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INSIDE

Goddard to Play Important Role in Mission to Planet Mars"

by John J. Loughlin II

When NASA's Mars Observer blasts off from the Kennedy Space Center, Fla., aboard a Titan III commercial launch vehicle this autumn, it will carry three instruments with a strong Goddard connection. Two instruments designed, built and managed at Goddard include the Mars Observer Laser Altimeter (MOLA) and the Mars Observer Mag-netometer and Electron Reflectometer. The science teams for these instruments also are at Goddard. The Mars Observer Gamma-Ray Spectrometer, managed by Goddard, was built by the Martin Marietta Astronautics Group, Denver, Colo. The Gamma-Ray Spectrometer science team is headed by scientists at the University of Arizona, Tucson, Ariz.

MOLA Co-Investigator for Geology, Dr. James Garvin, Code 921, explains that MOLA and the Mars Observer mission will do for Mars what the Earth Observing System (EOS) will do for planet Earth.

"MOLA will reveal for us the subtleties of Mars' topographic relief, the surface peaks and valleys of Mars, as part of a coordinated system of long term Martian environmental measurements made by the Mars Observer" he said.

Mars Observer scientists hope to observe the red planet for a full Martian year or approximately 687 Earth days.

Goddard's Dr. David Smith, Code 920, the MOLA principal investigator, will use the data from the MOLA as well as position information from the Mars Observer spacecraft to develop an accurate gravitational model of the red planet.

"We actually can use this altimetry and gravity data to 'see' what lies below the surface," he said. "Mars Observer data may actually help us understand what the interior of Mars is like."

MOLA represents the first flight of a laser altimeter to another planet. A laser altimeter differs from traditional radar altimeters because instead of bouncing a wide radar beam off surface features, a laser altimeter bounces narrow beams of laser light to make its measurements.

The Gamma-Ray Spectrometer will search for traces of hydrogen, a key element of water, while the Mars Observer Camera's high resolution images may show permafrost or channel features to reveal how much water once flowed on the surface and when.

Goddard's Dr. Mario Acuna, code 695, is the principal investigator for the Magnetometer and Electron Reflectometer which will measure the Martian magnetic fields.

"We know very little about the magnetic fields that surround Mars," he said, "this is a mystery we hope to

Mars at a glance:

Mars, also known as the red planet, was named for the Greek god of war Mars. Mars has long been the object of speculation and wonder. In the late 1800s, American astronomer Percival Lowell, using a telescope, observed canal like structures on the Martian surface and hypothesized great Martian civilizations. The canals were later proven to be optical illusions, but as recently as 1938, radio broadcaster Orson Welles caused a nationwide panic with his radio show about a fictitious Martian invasion based on H.G. Wells book "War of the World."

Average distance from Earth	*60-200 million miles (96-322 kilometers)*
Travel time	*approximately 11 months*
Size compared to Earth	*1/3 the size of Earth*
Highest recorded temperature	*7° (-14 celsius)*
Lowest recorded temperature	*-184° (-120 celsius)*
Moons	*two, Phobos and Deimos.*
Atmosphere	*primarily carbon dioxide.*
Life	*Viking evidence is inconclusive.*

Directors' Dialogue

Q. In other GSFC organizations, I have always gotten information from the director through the Director's Weekly and my own directorate staff meetings via notes distributed by the division chief. I understand my director now sends minutes from his staff meetings to key project management personnel on GSFCmail and that some project managers distribute them to all their personnel, but not on my project. Is there any Center policy on the flow down of information or is it left to the discretion of each Directorate?

[Both of the following answers address the above question.]

A. Open and free communications up, down and across management and organizational lines is a strong GSFC and personal goal. The GSFC Strategic Plan and emphasis on continuous improvement only reinforce this long-recognized basis of sound management. Employees should be fully informed of actions and developments which affect them and their careers.

For example, the Flight Projects Directorate has recently begun distributing minutes of its weekly project manager staff meetings. This was a deliberate initiative to assure that all flight project personnel (including colocated team members from other directorates and contractors) are fully informed. The format for both the meeting and minutes includes a summary of applicable proceedings of the director's executive council meeting, other directorate business and items of interest from each of the flight projects. The minutes are distributed promptly (usually on Monday afternoon) to each project office. Each project is encouraged to post or distribute the minutes so that all personnel have convenient access to them. In addition, each project office has regularly-scheduled staff meetings which provide an additional opportunity for communication.

However, if employees find these avenues insufficient or seriously inconvenient, I would encourage them to take the initiative to talk to their supervisors or peers to ask questions and discuss activities and developments which are of interest. Most managers maintain an open door policy and are willing to discuss topics of interest or concern at any time.

Vernon J. Weyers, Director
Flight Projects Directorate
Code 400

A. As far as I know the Center has no formal information flowdown process. There are many outlets used by the Center, but no formal policy. Code 700 has made a substantial effort to flow down information to all its employees. The Director's Weekly is distributed to the branches and available in each branch office.

The directorate has weekly staff meetings where the director's staff notes are discussed and distributed to the divisions. Divisions and branches have regular staff meetings and most sections as well. The Code 700 directorate office issues a monthly newsletter to all employees on the Code 700 activities of the month. It has been a very popular newsletter. We also have a periodic news bulletin which contains awards, training and general interest articles for the employees.

Once a year (October), Code 700 has an "all hands" meeting which has had very positive feedback from the employees.

Thomas E. Huber, Director
Engineering Directorate
Code 700

Questions for Directors' Dialogue may be sent in to Directors' Dialogue, Code 130, without identification. Questions are sent to the appropriate directorate office as written but may be edited for space and clarity before being printed.

Goddard Sends Help to Hurricane Andrew Victims

by Susie Marucci

When Hurricane Andrew tore through Florida and Louisiana in late August, it left devastation in both states. Massive efforts by individuals and groups worked to help the stranded and homeless victims.

Goddard was a part of that effort. On Sept. 3, buildings were opened and boxes removed, boxes that would mean food to hungry people. These cases, almost a thousand of them, held emergency food supplies no longer required at Goddard.

Photo: R. Moltere

Goddard helped the victims of Hurricane Andrew by sending emergency food supplies. Shown here, employees of Ogden Logistics Services move cases of food from Building 3.

According to Judith Fortier, Code 205, head of the Health and Safety Branch, "Each case holds enough freeze dried food to give one person a balanced meal for 14 days, and has an 'infinite' shelf life. The cases were stored in emergency shelters at Goddard." Fortier said that Goddard is working with FEMA, the Federal Emergency Management Association, and General Services Administration (GSA) to send the food to the homeless and distressed. Health and Safety employees went into the shelters and checked the cases of food to make sure they were undamaged. Then, employees of Ogden Logistics Services, who work for the Transportation Management Branch, Code 234, loaded the boxes onto trucks, and will transport the food to FEMA for distribution.

NASA Experiment Could Save Lives, Time and Money

Jim Elliott

A group of dedicated Alaskans has started a three-year experiment that ultimately could result in saving the lives of thousands of campers, hunters, boaters and others.

The Alaskans will test the use of a small emergency radio transmitter, known as a Personal Locator Beacon or PLB, to communicate with a 10-year-old search and rescue satellite system that up to now has been used primarily for aircraft and ship emergencies.

"We are confident the experiment will prove the value of these emergency devices," explained Ron Wallace, Code 480, Search and Rescue Mission manager.

"Use of the beacons by people in remote areas undoubtedly will save lives," he continued. "Their use also will lower search times and costs and reduce the dangers to personnel conducting the rescue missions." The experiment stems from a suggestion by Wayne Hembree, former Search and Rescue Mission Manager.

The experiment is being carried out with the cooperation of NASA, the National Oceanic and Atmospheric Administration, the U.S. Air Force and the U.S. Coast Guard.

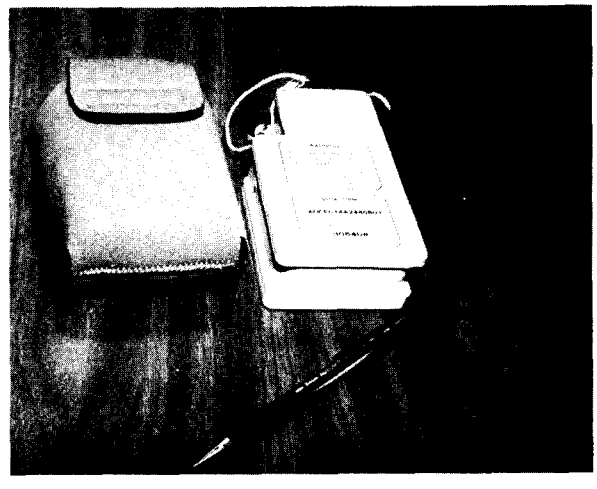
The satellite system, an international program known as COSPAS-SARSAT, has been responsible for saving more than 2,300 lives since it was started in 1982. Principal partners in this program are Canada, France, Russia and the United States.

The PLB experiment is designed to prove the need for a lightweight beacon that can be carried and used in an emergency by individuals.

The test is being funded by the North Slope Borough (Alaska) Search and Rescue Department (NSBSAR), according to Charles Caldwell, the project coordinator for the borough. NSBSAR provides year-round assistance to overdue hunters, boaters, whaling crews and aircraft, employing a staff of 14 personnel, three aircraft and two helicopters.

During the first 6 months of this year, Caldwell explained, the borough conducted 30 search missions, rescuing 29 persons. In most cases, he explained, the search plane or helicopter proceeded to the village nearest the emergency, picked up a spotter and began the search. The search under those circumstances can take hours or even days.

With a PLB, he said, the emergency signal would be picked up by a satellite within 55 minutes, the information sent to a rescue coordination center, and the rescue party could be at the scene shortly thereafter. In pre-experiment trials, Caldwell said, the PLB has brought searchers to within six-tenths of a mile and never more than 1.3 miles (2 kilometers) of the distress situation. Caldwell said the borough hopes to petition the Federal Communications Commission to approve the use of PLBs in about a year.



The Personal Locator Beacon weighs only 16 ounces and is not much larger than a cigarette package.

What's UP? September 1, 1992

SAMPEX — *Days in Orbit: 60*
Interesting Fact: The LEICA high voltage problem continues under investigation with tests being performed at the University of Maryland and with the instrument onboard. Project officials report that the spacecraft and the other instruments continue to perform nominally.

EUVE — *Days in Orbit: 86*
Interesting Fact: An object emitting extreme ultraviolet light located outside the Milky Way galaxy was detected by EUVE through interstellar gas and dust once thought to block this source of radiation.

UARS — *Days in Orbit: 353*
Interesting Fact: Attempts to restart the UARS Improved Stratospheric and Mesospheric Sounder (ISAMS) chopper wheel motor, which stopped on July 29, have been unsuccessful. Attempts to restart the chopper motor continue.

COMPTON — *Days in Orbit: 514*
Interesting Fact: The Burst and Transient Source Experiment (BATSE) has discovered an unusually bright new source of X-rays and gamma-rays in the constellation Perseus. (See story page 4.)

HST — *Days in Orbit: 799*
Interesting Fact: HST operations have returned to normal following the recent safemode entry and recovery. Science observations that had been scheduled for execution during the safemode events are being rescheduled.

Compton Observatory Discovers New Energy Source

NASA scientists have discovered an unusually bright new source of X-rays and gamma-rays in the constellation Perseus. The source was detected August 8 by the Goddard-managed Compton Gamma Ray Observatory.

The energetic radiation is coming from a location in the sky where there is no known source of X-rays or gamma-rays, according to Dr. Gerald Fishman, at Marshall Space Flight Center, Huntsville, Ala. Fishman is principal investigator for the Burst and Transient Source Experiment (BATSE), which detected the source.

The Compton Observatory has been reoriented to allow the other gamma-ray instruments aboard the spacecraft to study the source.

"At this point, the source looks different than anything we've ever seen,' said Compton Project Scientist Dr. Neil Gehrels, Code 661. "We're all really excited about it. This is the fastest we've ever repointed the observatory. We decided at ten in the morning on August 10 and the operations team repointed it by nine that night. The science is so interesting we didn't want to wait," Gehrels added.

Sources of this type are referred to by astronomers as transient sources and occur at a frequency of approximately one or two a year.

The outbursts are thought to originate in exotic binary star systems containing an ordinary star in orbit with a highly compact star, either a neutron star or a black hole. The outbursts are believed to be triggered when a large amount of material is suddenly released from the normal star and falls through the intense gravitational field of the compact star onto is surface.

Quality Training Kickoff at Goddard

by Matt Jarvis, Code 114

Goddard's Executive Council is collaborating with Organizational Dynamics Inc., Burlington, Mass., to design and execute a Center-wide total quality training initiative. The initial phase has two objectives: to provide "just in time" support for already-established Process Improvement Teams, and to train managers and supervisors in the basic tools and concepts of Total Quality Management.

To accomplish the first objective, the supervisors and group leaders of teams that already are reviewing various work processes will be trained. Supervisors of these teams will participate in a one-day workshop on "The Quality Advantage," which explores the meaning of quality, the costs of quality, the role of management, customer-supplier relations, team-building and the basic tools of Total Quality Management.

Team leaders will participate in an expanded three-day workshop that includes an introduction to process management and continuous improvement, basic leadership skills and an overview of total quality tools and concepts. Both workshops will introduce Organizational Dynamic's FADE (Focus, Analyze, Develop, Execute) model, a "7-Step Blueprint for Implementation of Total Quality," and offer practical strategies for applying the latest developmental tools to specific process improvement actions.

Supervisory and leader workshops, beginning this month, will be scheduled through December.

The second objective is to provide systematic "Management Awareness and Appreciation" workshops for approximately 400 managers and supervisors at and above the branch level. In addition to the FADE model and 7-Step Blueprint, topics include the role of management in quality improvement, basic principles of TQM, process improvement tools, working in teams, management roles and responsibilities within teams, and action planning. These workshops are being scheduled for the next four months.

Goddard Participates in World Space Congress

Sixty-seven Goddard scientists and a robot named "Dante" gathered in Washington, D.C., recently to participate in the World Space Congress, the premier scientific and engineering symposium of the International Space Year.

The Goddard scientists participated in the symposium through panels, talks and papers that demonstrated their findings in astrophysical research, space physics and solar system exploration.

The World Space Congress also hosted a rover parade and expo and Dante, the robot, was there. Named after the fourteenth century author of the Divine Comedy, Dante Alighieri, this 700-pound (317-kilogram), eight-legged rover will explore the inner workings of Mt. Erebus, an Antarctic active volcano, later this year.

Scientists and engineers from Carnegie Mellon University, Pittsburgh, Pa., may have designed and built Dante, but according to Stan Ollendorf, Code 714, Goddard has been involved in the mission since Dante's beginning.

"Goddard supplied Dante's proximity sensors or eyes," Ollendorf said. "We also supplied to Carnegie Mellon a gamma-ray spectrometer similar to the one flying on the Mars Observer spacecraft," he said.

Scientists will use data from the gamma-ray spectrometer to determine the chemical composition of the Antarctic volcano.

LAGEOS II and Hitchhiker Thumb a Ride on STS-52

by Jessie Katz and Susie Marucci

When the Space Shuttle Columbia launches on the STS-52 mission in October, Goddard will play an important role in two of the payloads. On one project, LAGEOS II, Goddard provided materials, background information and optical measurements on the satellite, and Goddard scientists will be among those studying the results received. The other payload is a Goddard-managed Hitchhiker.

The LAser GEOdynamics Satellite (LAGEOS) II, scheduled for launch next month aboard Space Shuttle Columbia on the STS-52 mission, is a passive satellite dedicated exclusively to laser ranging like its predecessor, LAGEOS I, launched in May 1976. Laser ranging involves sending laser beams to the satellite which are reflected back to Earth. By recording the round-trip travel time, scientists can monitor the motion of the rigid blocks of the Earth's crust, called plates; measure and further understand the "wobble" in the Earth's axis of rotation; collect information on the Earth's size and shape, and more accurately determine the length of the day. Goddard is the site of one of 10 NASA laser ranging observatories located around the world.

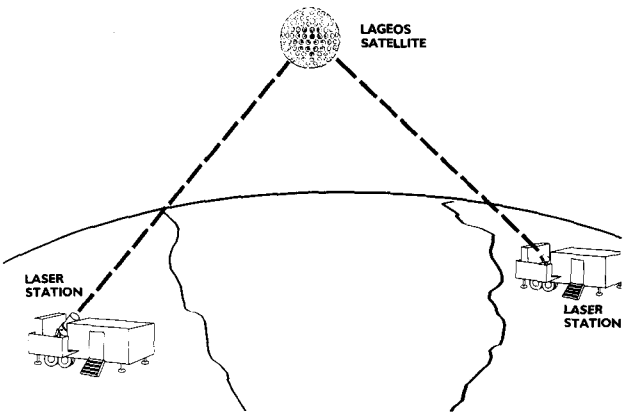
The LAGEOS II project is a joint program between NASA and the Italian Space Agency, Agenzia Spaziale Italiana (ASI). "It has been a pleasure to work with the Italian Space Agency over the past decade on this exciting international project," said James P. Murphy, Code 404, deputy project manager for LAGEOS II in the International Projects Office.

Also, STS-52 will carry the third Hitchhiker payload to fly in space. Hitchhikers, part of Goddard's Shuttle Small Payloads Project, provide quick-response, economical flights for small attached payloads that have more complex requirements than Get Away Special experiments.

The STS-52 Hitchhiker payload carries one foreign reimbursable experiment, the Attitude Sensor Package (ASP) experiment. This experiment was prepared by the In-Orbit Technology Demonstration Programme of the European Space Agency (ESA).

The ASP experiment consists of three unique spacecraft attitude sensors, an on board computer and a support structure. The primary sensor is the Modular Star Sensor (MOSS); the other two sensors are the Yaw Earth Sensor (YESS), and the Low Altitude Conical Earth Sensor (LACES). The ASP sensors and their support structure are assembled on a Hitchhiker small mounting plate. The Hitchhiker avionics, mounted to another small mounting plate, provide power and signal interfaces between the ASP experiment and the shuttle. This flight experience will be evaluated by ESA for possible use of these sensors on future ESA programs.

During the mission, the ASP experiment will be operated for 16 orbits from the Hitchhiker Payload Operations Control Center (POCC), located at Goddard. ESA personnel and contractors will operate their ground support equipment in the POCC during the shuttle flight.



Meteor-3/TOMS Celebrates One Year Anniversary

by Dolores Beasley

NASA'S Total Ozone Mapping Spectrometer (TOMS), the first NASA instrument integrated and flown on a Soviet satellite, was successfully launched one year ago on August 15, 1991. TOMS is on a Russian Meteor meteorological satellite and was lifted into orbit on a Cyclone rocket from the Plesetsk launch site in the former Soviet Union.

The data returned from the Meteor-3/TOMS mission is yielding scientifically useful results, said Charles Cote, Meteor-3/TOMS project manager, Code 910. "These results are increasing our understanding of atmospheric ozone, radiative transfer, and aerosol detection, and they are improving scientists' abilities to analyze remote sensing data for future missions," he said.

Scientists from both countries report they continue to receive good data from the instrument and that they are in agreement with the data received from the first TOMS, launched aboard NASA's Nimbus-7 satellite in 1978. "This project's success points to continued cooperation," said Goddard's Dr. Arlin Krueger, Meteor-3/TOMS project scientist.

The TOMS instruments are managed by Goddard for NASA's Office of Space Science and Applications, Washington, D.C. The Russian State Committee for Hydrometeorlogy (Hydromet) provides mission operations and TOMS housekeeping data. A Moscow team controls the commands to the spacecraft and every two weeks personnel from Goddard send command sequences for TOMS operations to Russia. Data are downlinked to receiving stations at Goddard's Wallops Flight Facility, Wallops Island, Va., and Obninsk, Russia.

Tom Dixon: Getting GAS off the Ground

by Dolores Beasley

It was 1986 and the height of the recession. Recent college graduate Tom Dixon was working as a landscaper when he learned that his alma mater, Loyola College in Baltimore, was scheduling job interviews and that one of the positions involved working at NASA's Goddard Space Flight Center.

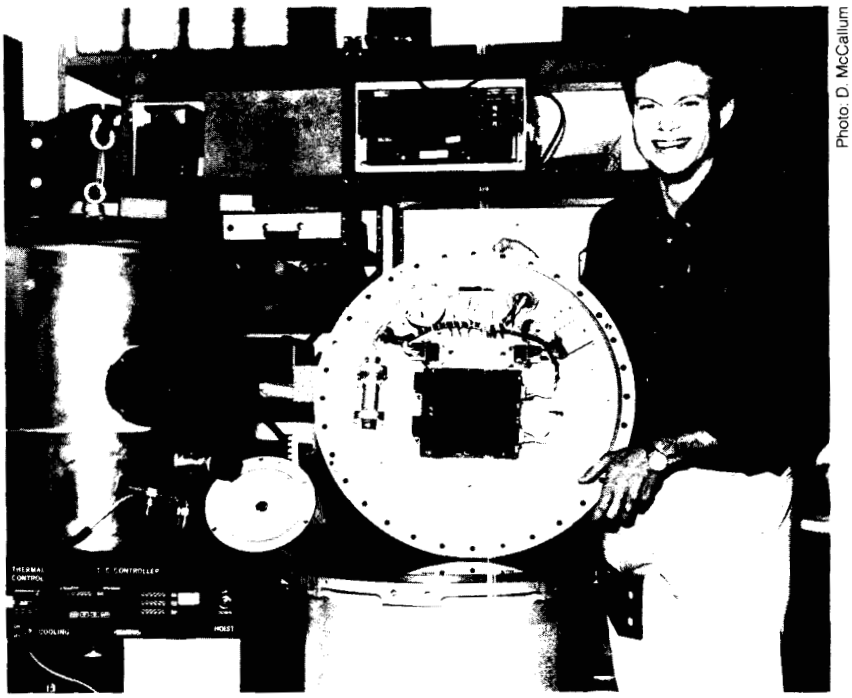


Photo: D. McCallum

Tom Dixon, Code 740.3, GAS flight operations manager, holds a GAS can lid.

The day before the interview, Dixon realized he had never been to Goddard, so he took a trip to the Visitor Center. The Get Away Special (GAS) exhibit caught his eye. "I thought, 'that might be something fun to do,' " he said.

The next day, Dixon was in line at 3 a.m. to sign up for the interview.

Six Short Years

Now, six years later, Tom Dixon, Code 740.3, is currently GAS flight operations manager, a duty he shares with Susan Olden. He is also mission manager for three upcoming small secondary payloads, is NASA technical manager for three experiments on the upcoming STS-47 flight and serves as Clarke Prouty's back-up as GAS mission manager. Dixon has worked with the GAS project since June 1990. Prior to that, he was with Code 743, working on software ground support equipment for the Small Explorer Project.

With GAS payloads, customers can fly simple experiments, Dixon said, such as tomato seeds, or complicated ones like a thermal acoustic refrigerator or a galactic telescope, both of which flew on the STS-42 mission in January.

The secondary experiments he's involved with are actually individual payloads that use GAS hardware and require more shuttle resources than GAS experiments can provide. One, the Orbital Debris Radar Calibration Spheres (ODERACS-I) experiment, will fly on STS-53 in November and two experiments, ODERACS-II and the Solar Ultraviolet Experiment (SUVE), a complementary payload on Atlas-2, are on STS-56 currently scheduled for early next year.

Team Work

Dixon recently became involved in Total Quality Management (TQM) and is on a team composed of members from NASA Headquarters, Goddard and other NASA centers to look at how the GAS project is run and how it can be improved.

"We broke up into five teams," Dixon said. "I'm serving on two and chairing a third." What he has seen of TQM, he likes. "It is a really efficient way to get things done," he said. "It minimizes disputes and extraneous discussion and keeps the work focused and brings all participants to one level." He added that with TQM, "The focus is on team work and not one leader and a bunch of followers. This can be applied to any situation, not just work."

Dixon, 30, and his wife Beth live in Edgewood, Md., with their two children Andrew, age 3, and Holly, nine months. He describes himself as "just your basic suburbanite." In his off-hours Dixon enjoys playing with his children and working with the Gunpowder Valley Conservancy in Harford County to restore a 1772 Mill in Gunpowder State Park. "People don't realize it, but this [Gunpowder Valley] is one of the most historic areas in Maryland," he said.

Dixon said the most fun part of this job at Goddard is working with the GAS customers. Among his favorites are high school students because they are so enthusiastic. Working on the GAS experiment designed by students from the People's Republic of China that flew on STS-42 was particularly rewarding, he said. "It demonstrates, despite peoples differences, what they can do when they cooperate."

EMPLOYEE COLLOQUIUM SERIES

The second set of the Employee Colloquium Series is scheduled to begin Wednesday, September 9 with a talk, entitled "The Art of Welding and its Importance to the Space Program," by Sidney R. McClure, Code 752.1. The series will continue with colloquia, entitled "COBE in its Third Year: Major Discoveries," October 28; "Saving Humans and Animals Using NASA Satellites," on Wednesday, November 4 and "Capitol Hill's Impact on NASA," to be presented December 2.

The Employee Colloquium Series, sponsored by the Goddard Office of Public Affairs, is aimed at non-technical personnel on Center. It presents talks on Goddard missions, science for non-scientists and other items of interest for everyone. The fall series will continue through December.

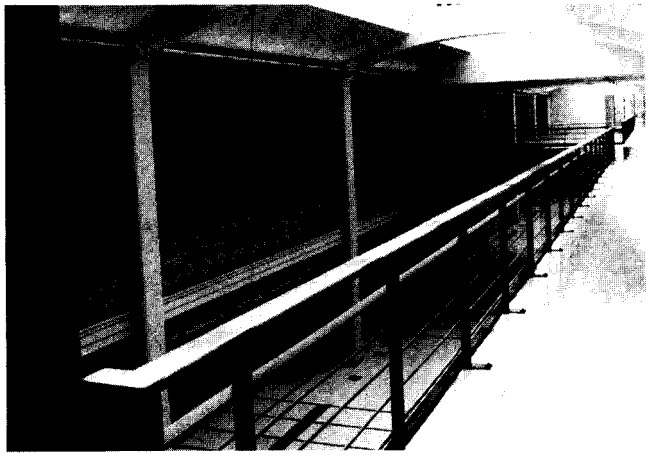


Photo: R. Moltere

A contemporary two-story building, the Data Operations Facility (DOF), better known as Building 28, was completed in August 1992. The DOF will provide more than 50,000 square feet (4645 square meters) of usable office space for NASA and contractor scientists and support personnel at Goddard.

GIVE

On August 5, 1992, the Bloodmobile was held in the Building 8 auditorium, and 174 prospective donors volunteered to donate blood. The following is a list of Goddard employees who were cited by the American Red Cross with gallon pins at the Bloodmobile.

# of Gallons	Name	Code
12	P. Smith	704.2
10	Walter Sullivan	702
7	Wyatt Rinker	750.5
6	Andrew Szymkowski	666
4	M. Goldman	114
4	L. Campbell	—
3	Keith Opperhauser	423
3	Mark Steiner	743
2	Gail Wade	562.2
1	J. Byrd	—
1	C. Devine	—

The next Bloodmobile is scheduled for October 7 in the Building 8 auditorium. Watch Dateline Goddard for more details.

Mopping Up in Flight Dynamics

by Susie Marucci

When a computer stops working or "goes down" in the office, it can be frustrating. But when computers that provide support for the space shuttle stop working, it can be disastrous. Because of that possibility, the Flight Dynamics Division's Flight Dynamics Facility (FDF), holds a continuity of operations test, also called a mop-and-bucket exercise, each year. It is based on an actual experience that happened several years ago when the FDF computers were unavailable because of water damage.

During the exercise, held in July, a simulated emergency caused the entire computer system in FDF to stop functioning. It involved everyone who works within the FDF from the computer operators, to facility managers, to building engineers. The four-hour exercise required emergency decision making, emergency responses, system recovery and evacuation.

Photo: R. Frisch

From left, Terrance Starks, Wanda Cauley and Craig Wiseman, all RMS Technology Inc., took part in the "mop and bucket exercise" in August. During the exercise, Starks was monitoring the system status, Cauley was notifying the emergency management team and Wiseman was directing the emergency response teams.

According to Darryl Lakins, Code 551, Data Processing Installation Computer Security Official, "The simulation met all of our objectives. It was very valuable. Our systems were down, but through contingency procedures we were able to inform people and get information to the right places."

The mop-and-bucket exercise was held in conjunction with the first Flight Dynamics Division Information Resource Protection Week. During the week employees from Flight Dynamics participated in a number of lectures and seminars about computer security. In addition to a general overview about computers, there were lectures for software developers, security awareness and C2—the government standard for computer systems handling sensitive materials and a C2-like com-

Manned Flight Awareness Honorees Visit Florida

The most recent group of Manned Flight Awareness (MFA) honorees went to Kennedy Space Center (KSC) and viewed the June 25 launch of STS-50, carrying the U.S. Microgravity Laboratory. In addition to the launch, the 15 Goddard employees had a VIP tour of Kennedy Space Center, Fla., a visit to the Merritt Island Tracking Station and a reception held in their honor. Astronaut Tom Henricks presented the honorees with a Certificate of Merit. The MFA Launch Honoree award is the highest and most prestigious award available to employees of the NASA/industry shuttle team. The primary objective of the MFA program is to ensure safety and mission success by emphasizing to NASA and industry employees the great importance of their work.

The STS-50 Manned Flight Awareness Launch honorees were, seated, from left to right, Franz J. Lengenfelder, Code 541; Mary H. Foote, Computer Sciences Corp. (CSC); Herbert W. Greenhorn, CSC; Karla A. Peterson, CSC; and Bernard C. Fath, Code 542. Standing, from left to right, John A. Taylor, Bendix Field Engineering Corp. (BFEC); John L. Fiorello, CSC; Clyde H. Brown, BFEC; Thomas A. Cygnarowicz, Code 713; Michael J. Eder, BFEC; Daniel J. Knighton, McDonnell Douglas Space Systems Co.; Robert L. Lenard, BFEC. Not shown, David A. Lorenz, Code 430; and Edward O. Ruitberg, Code 441.

Congratulations...

Congratulations to **Andrew "Drew" Jones**, Code 722.4. Outside his work day, Jones, a mechanical engineer in the Computer Aided-Design section of the Applied Engineering Division, is very active in local theater. Jones wrote the libretto (the text) and part of the music for a full-length musical entitled, "Complements," that ran for several weeks at the Montgomery Playhouse in Gaithersburg, Md. In addition to his composition, Jones and his wife performed in the show. The musical, about the interpersonal relationships of three married couples that become friends, was actually performed by three married couples.

... and More Congratulations

Congratulations to **Dr. John O'Keefe**, who received his 50 Year Service Award last month. O'Keefe, Code 681, works in the astronomy branch of the Laboratory for Astronomy and Solar Physics. Center Director Dr. John Klineberg presented O'Keefe with his award. He has worked at Goddard since it opened, before that he worked for the U.S. Army. He was responsible for the technical design of the coordinate system used by the U.S. forces in the Korean War, the Vietnam War and the Gulf War. O'Keefe has spent more than 30 years studying tektites, glassy bodies found in several areas of the world, and he considers them to be from lunar origin rather than terrestrial impacts. To pursue this, O'Keefe is using evidence from field geology, theoretical studies in physics and chemistry and a wide variety of laboratory analytical techniques. In addition to his work with tektites, O'Keefe first predicted and planned geodetic uses of artificial satellites. In a letter to O'Keefe, NASA Administrator Daniel Goldin praised him for the many contributions he has made to Goddard.

Goddard News

NASA National Aeronautics and Space Administration
Goddard Space Flight Center

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